SCS2204 Functional Programming

Lab sheet 07

Index Number: 21000557

- Please note that the Scala files are located in src/main/scala folder.
- GitHub Link: https://github.com/ItsAeox/UCSC_FP_labsheet_07
- Screenshot of the code is given below.

1.

```
run | debug
@main def Question_01: Unit = {
  print("Enter the integers: ")
    val inputStr = scala.io.StdIn.readLine()
    val inputList = inputStr.split(" ").map(_.toInt).toList

    val output = filterEvenNumbers(inputList)
    print("Even numbers in the list: " + output.mkString(", "))
}

def filterEvenNumbers(numbers: List[Int]): List[Int] = {
    numbers.filter(number => number % 2 == 0)
}
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

PS C:\Users\gayat\Desktop\Scala\UCSC_FP_labsheet_07> scala "c:\Users\gayat\Des
Enter the integers: 1 2 3 4 5 6 7 8 1 34 55 32
Even numbers in the list: 2, 4, 6, 8, 34, 32
PS C:\Users\gayat\Desktop\Scala\UCSC_FP_labsheet_07>
```

2.

```
run | debug
@main def Question_02: Unit = {
    print("Enter the integers: ")
    val inputStr = scala.io.StdIn.readLine()
    val inputList = inputStr.split(" ").map(_.toInt).toList

    val output = calculateSquare(inputList)
    print("Squares of the numbers: " + output.mkString(", "))}

def calculateSquare(numbers: List[Int]): List[Int] = {
    numbers.map(number => number * number)
}
```

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL

PS C:\Users\gayat\Desktop\Scala\UCSC_FP_labsheet_07> scala "c:\Users\gayat\Deskt
Enter the integers: 1 2 3 5 7 11 32 81
Squares of the numbers: 1, 4, 9, 25, 49, 121, 1024, 6561
PS C:\Users\gayat\Desktop\Scala\UCSC_FP_labsheet_07>
```

3.

```scala
run | debug
@main def Question_03: Unit = {
    print("Enter the integers : ")
    val inputStr = scala.io.StdIn.readLine()
    val inputList = inputStr.split(" ").map(_.toInt).toList

    val output = filterPrime(inputList)
    print("Prime numbers in the list: " + output.mkString(", "))}

val isPrime: Int => Boolean = n => {
    if(n <= 1){
        false
    }
    else if(n == 3 || n ==2){
        true
    }
    else{
    checkPrime(n, 2)
    }
}

def filterPrime(numbers: List[Int]): List[Int] = {
    numbers.filter(isPrime)
}

def checkPrime(n: Int, i: Int): Boolean = {
    if(i < n) {
        if(n % i == 0){
            false
        }
        else{
            checkPrime(n, i+1)
        }
    }
    else{
        true
    }
}
```

```
ROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

S C:\Users\gayat\Desktop\Scala\UCSC_FP_labsheet_07> scala "c:\Users\gayat\Desktop\Scala\UCSC_FP_
nter the integers : 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
rime numbers in the list: 2, 3, 5, 7, 11, 13, 17, 19, 23
```